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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/804,993	03/13/2001	Brij Bahadur Agrawal	U 013307-3	9312

7590

05/30/2003

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EXAMINER

ARNOLD JR, JAMES

ART UNIT

PAPER NUMBER

1764

DATE MAILED: 05/30/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/804,993

Applicant(s)

AGRAWAL ET AL.

Examiner

James Arnold, Jr.

Art Unit

1764

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 March 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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## DETAILED ACTION

### *Response to Amendment*

The objections to the specification have been overcome. The double patenting rejections of claims 17 and 18 have been overcome. The rejections under 35 U.S.C Section 112 have also been overcome.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carlson (USPN 4,411,776) in view of Mazgarov (USPN 5,683,574).

The Carlson reference teaches a process for fixed bed sweetening of sour petroleum using the metal phthalocyanine as the catalyst. See column 3, line 13; column 7, line 44-45. It teaches impregnating a catalyst on an activated charcoal bed by circulating an alcoholic alkaline solution of the catalyst through the charcoal bed. See column 8, lines 10-17. It teaches the use of sodium

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hydroxide as an alkali solution. See Column 2, lines 50-60. It also teaches the passing of the petroleum distillate through the catalyst loaded charcoal bed and along with air or oxygen at a temperature up to 105 C or higher, a pressure in the range of up to 1000 psi or more (70.3 kg/cm<sup>2</sup>) with a liquid hourly space velocity of from about 0.5 to about 10 or more. See column 7, lines 28-33. It also teaches passing the petroleum distillate through the charcoal bed with continuous or intermittent injection of alkali solution. See column 7, lines 3 – 14.

The Carlson reference does not teach the catalytic use of the metal phthalocyanine in halogenated form. The Carlson reference does not teach the circulation of alcoholic alkaline solution of the catalyst through the charcoal bed till colourless solution is obtained in the effluent. It also does not teach a continuous or intermittent injection of alkali solution with a concentration in the range of 0.5-20%. It also does not teach the use of dichloro cobalt phthalocyanine and dibromo cobalt phthalocyanine as halogenated metal catalysts. Finally, it does not teach the weight percentage of the catalyst in relation to the bed of activated charcoal. The reference does not teach the use of chlorine, bromine, iodine, thionyl chloride, sulphuryl chloride, phosphorus pentachloride, phosphorus oxychloride, phosphorus pentabromide, and phosphorus trichloride as halogenating agents.

The Mazgarov reference teaches the use of halogenated phthalocyanine as a catalyst for removing mercaptans from petroleum and gas. See Column 3, lines 5-47. The reference teaches the use of chlorine and bromine as halogenating agents. See Column 3, lines 45-47

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a halogenated phthalocyanine, i.e dichloro cobalt phthalocyanine and dibromo cobalt phthalocyanine, to remove mercaptans because the Mazgarov reference

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discloses the use of a halogenated phthalocyanine for sweetening of petroleum. It also would have been obvious to one having ordinary skill in the art at the time of the invention was made to circulate an alcoholic alkaline solution through the charcoal bed till colourless solution is obtained in the effluent because the colourless solution indicates a complete absorption of the catalyst on the charcoal bed. Furthermore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the concentration of the alkali solution and to modify the weight percentage of the catalyst in relation to the bed of activated charcoal to an appropriate level because both the alkali solution and the catalyst are disclosed by the Carlson reference. It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize chlorine, bromine, iodine, thionyl chloride, sulphuryl chloride, phosphorus pentachloride, phosphorus oxychloride, phosphorus pentabromide, and phosphorus trichloride as halogenating agents because the Mazgarov reference discloses the use of chlorine and bromine as halogenating agents and since iodine, thionyl chloride, sulphuryl chloride, phosphorus pentachloride, phosphorus oxychloride, phosphorus pentabromide, and phosphorus trichloride are either halogens or contain halogens they would be expected to perform in a similar manner.

### ***Response to Arguments***

The argument that Carlson describes and claims a method using impregnating a catalyst on a fixed bed, wherein the catalyst is a metal phthalocyanine, or, usually, a sulfonated derivative such as cobalt phthalocyanine monosulfonate is deemed unpersuasive. The Carlson reference also states that other derivatives other than sulfonated derivatives may be employed. See column 3, lines 30-35. The argument that the Mazgarov catalyst differs because the rings are halogen-

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substituted and they are sulfonated is also deemed unpersuasive. The Applicant does not claim a catalyst without halogen substituted rings nor does it claim a catalyst with halogen-substituted rings that are not sulfonated. Therefore, the Examiner maintains that it would have been obvious to one having ordinary skill in the art to utilize the halogenating agents of Mazgarov to modify the metal phthalocyanine catalyst of Carlson to be used in a fixed bed sweetening process.

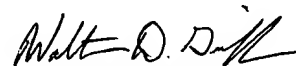
### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Arnold, Jr. whose telephone number is 703-305-5308. The examiner can normally be reached on Monday-Thursday 8:30 AM-6:00 PM; Fridays from 8:30 AM-5:00 PM with alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 703-308-6824. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.

ja  
May 29, 2003

  
**Walter D. Griffin**  
**Primary Examiner**